

CLAIMS

5 *Sub A1* 1. A method of manufacturing a magnetic disc cartridge comprising a casing formed of upper and lower shell halves mated together, a disc-like recording medium supported for rotation in the casing and a liner fixed to each of the inner surfaces of the upper and lower shell halves by ultrasonic welding by use of an ultrasonic welding horn, the liner having an outer contour defined by an outer peripheral edge, a central opening defined by an inner peripheral edge, and a slit-like cutaway portion defined by a pair of linear edges extending between the outer peripheral edge and the inner peripheral edge, which method is characterized in that

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15 said ultrasonic welding horn is provided with a welding pattern in the form of a protrusion pattern formed on a welding face thereof over the entire welding area in which the ultrasonic welding horn is brought into contact with the liner, and the liner is welded to the inner surface of the shell half over the entire area of the liner
20 along the welding pattern.

2. A method as defined in Claim 1 in which said welding pattern is selected from a group consisting of a longitudinal stripe pattern, a transverse stripe pattern, a grid pattern and a radial pattern.

25 3. A method as defined in Claim 1 in which the welding pattern is uniformly spaced over the entire area of

the liner opposed to the recording area of the recording medium.

4. A method as defined in Claim 1 in which the welding pattern is formed of a continuous protrusion.

5. A method as defined in Claim 1 in which the welding pattern is formed of a plurality of discontinuous protrusions.

6. A method of manufacturing a magnetic disc cartridge comprising a casing formed of upper and lower shell halves mated together, a disc-like recording medium supported for rotation in the casing and an octagonal liner fixed to each of the inner surfaces of the upper and lower shell halves by use of a welding horn, the liner having a substantially octagonal outer contour defined by an outer peripheral edge, a central opening defined by an inner peripheral edge, and a slit-like cutaway portion defined by a pair of linear edges extending between the outer peripheral edge and the inner peripheral edge, which method is characterized in that

the welding horn has a welding face whose outer contour is an octagon conforming to the outer contour of the liner so that the liner is welded to the inner surface of the shell half substantially over the entire outer peripheral edge thereof.

7. A method as defined in Claim 6 in which the liner is welded to the inner surface of the shell half

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substantially over the entire outer peripheral edge, the inner peripheral edge and the linear edges in such a manner that the liner is welded to the inner surface of the shell half continuously over the edges or is welded at a plurality of spots arranged along the edges sufficiently closely to prevent fibers of the liner from dropping from the edges.

8. A method as defined in Claim 6 in which the liner is welded to the inner surface of the shell half by forming an energy director protrusion on the inner surface of the shell half along the edge of the liner to be welded.

9. A method as defined in Claim 6 in which the liner is welded to the inner surface of the shell half by forming a protrusion on the welding face of the welding horn along the edge of the liner to be welded.

10. A method as defined in Claim 9 in which the welding face of the ultrasonic welding horn is bulged outward where the part of the liner positioned outside the recording area of the recording medium is narrowed.

11. A method of manufacturing a magnetic disc cartridge comprising a casing formed of upper and lower shell halves mated together, a disc-like recording medium supported for rotation in the casing and a liner fixed to each of the inner surfaces of the upper and lower shell halves, which method is characterized in that the surface of an edge portion of the liner facing

the recording medium is made more distant from the recording medium than the other part of the liner and fixing agent is caused to soak into the edge portion and is solidified there.

12. A method as defined in Claim 11 in which the surface of an edge portion of the liner facing the recording medium is made more distant from the recording medium than the other part of the liner by forming a recess in the inner surface of the shell half.

13. A method as defined in Claim 11 in which the fixing agent is adhesive.

14. A method as defined in Claim 11 in which the fixing agent is molten resin obtained by fusing a part of the shell half.

15. A magnetic disc cartridge comprising a casing formed of upper and lower shell halves mated together,

a disc-like recording medium supported for rotation in the casing, and

a pair of liners respectively fixed to the inner surfaces of the upper and lower shell halves,

each of the upper and lower shell halves being provided with a magnetic head insertion opening and each of the liners having a slit-like cutaway portion opposed to the magnetic head insertion opening of the corresponding shell half, wherein the improvement comprises that

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5 a part of each of the liners extending upstream from the edge of the cutaway portion as seen in the direction of rotation of the recording medium is not fixed to the inner surface of the shell half so that the unfixed part can float from the inner surface of the shell half into contact with the surface of the recording medium.

10 16. A magnetic disc cartridge as defined in Claim 15 in which at least an edge portion of the part of the unfixed part of the liner to be brought into contact with the recording medium is subjected to fiber fixing treatment for preventing hairiness and separation of fibers.

15 17. A magnetic disc cartridge as defined in Claim 15 in which the unfixed part is formed within 60° from the center of the magnetic head insertion window as measured in the direction of rotation of the recording medium.

20 18. A magnetic disc cartridge as defined in Claim 15 further comprising a resilient member or a rigid member disposed between the unfixed part and the inner surface of the shell half to urge the unfixed part toward the recording medium.

25 19. A method of cleaning a liner of a magnetic disc cartridge comprising a casing formed of upper and lower shell halves mated together, a disc-like recording medium supported for rotation in the casing and a pair of liners respectively fixed to the inner surfaces of the upper and lower shell halves, which method comprising the

steps of

positioning each of the shell halves bearing thereon the liner fixed thereto with the surface of the liner opposed to a front end face of an ultrasonic welding horn at a predetermined space therefrom,

vibrating the liner by ultrasonic wave radiated from the front end face of the ultrasonic welding horn, and blowing an air flow against the surface of the liner.

20. A method of cleaning a liner as defined in Claim 19 in which the distance between the liner and the front end face of the ultrasonic welding horn is an integral multiple of a half wavelength of the ultrasonic wave as propagating in the air.

21. A method of cleaning a liner as defined in Claim 19 in which the ultrasonic welding horn is moved relatively to the liner in a range including an integral multiple of a half wavelength of the ultrasonic wave as propagating in the air.

22. A method of cleaning a liner of a magnetic disc cartridge comprising a casing formed of upper and lower shell halves mated together, a disc-like recording medium supported for rotation in the casing and a pair of liners respectively fixed to the inner surfaces of the upper and lower shell halves, which method comprising the steps of

bringing each of the shell halves bearing thereon
the liner fixed thereto into contact with an ultrasonic
welding horn,

vibrating the liner by ultrasonic wave applied to
the shell half from the ultrasonic welding horn, and

blowing an air flow against the surface of the
liner.

23. A method as defined in Claim 22 in which the
shell half is supported by an elastic means disposed on the
side of the shell half remote from the ultrasonic welding
horn.

24. A method as defined in Claim 22 in which the
shell half is placed on a support table supported by an air
cylinder.

Add Air